



# West Maui Watershed Stewardship

Restoring Watersheds, Restoring Reefs

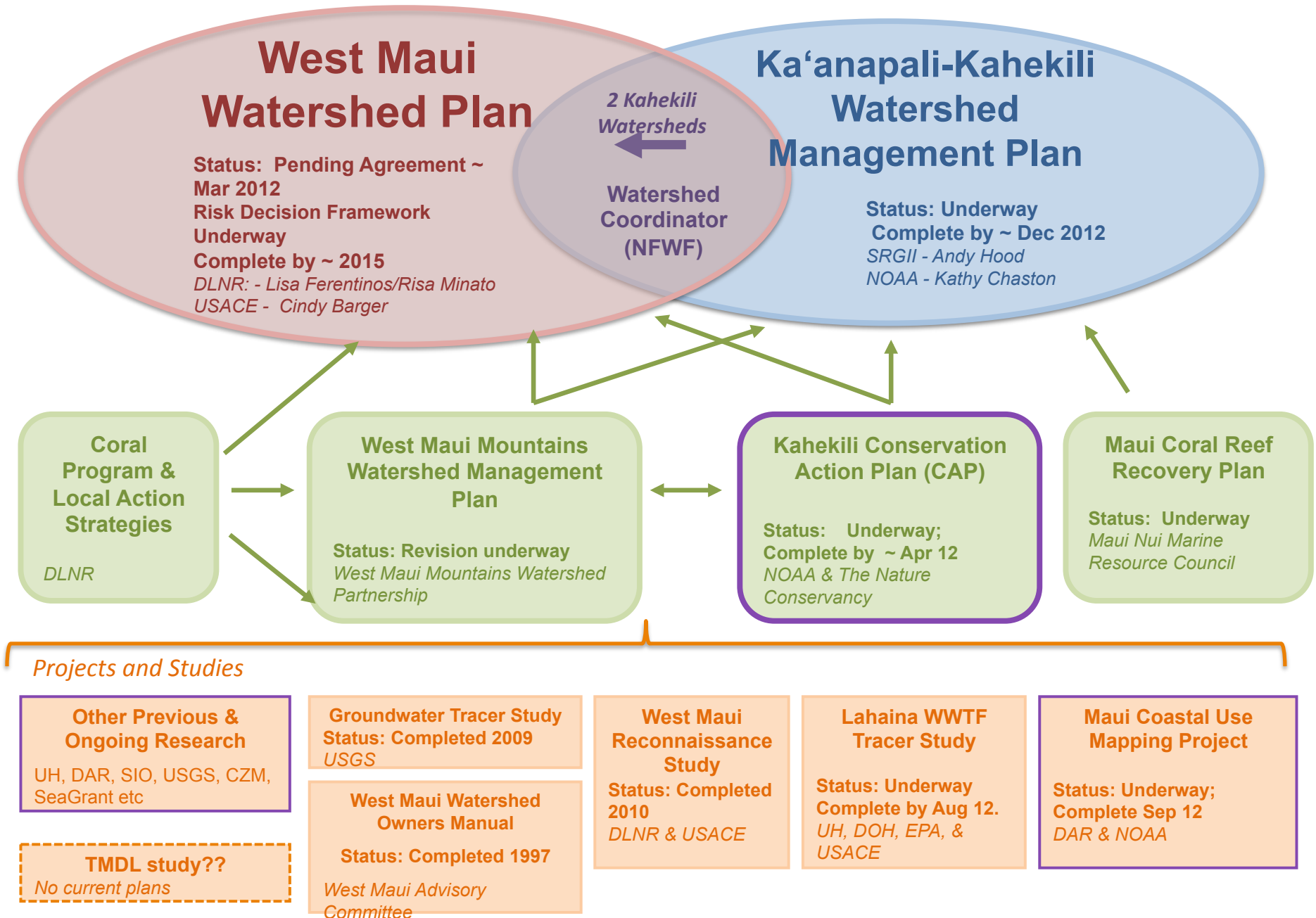




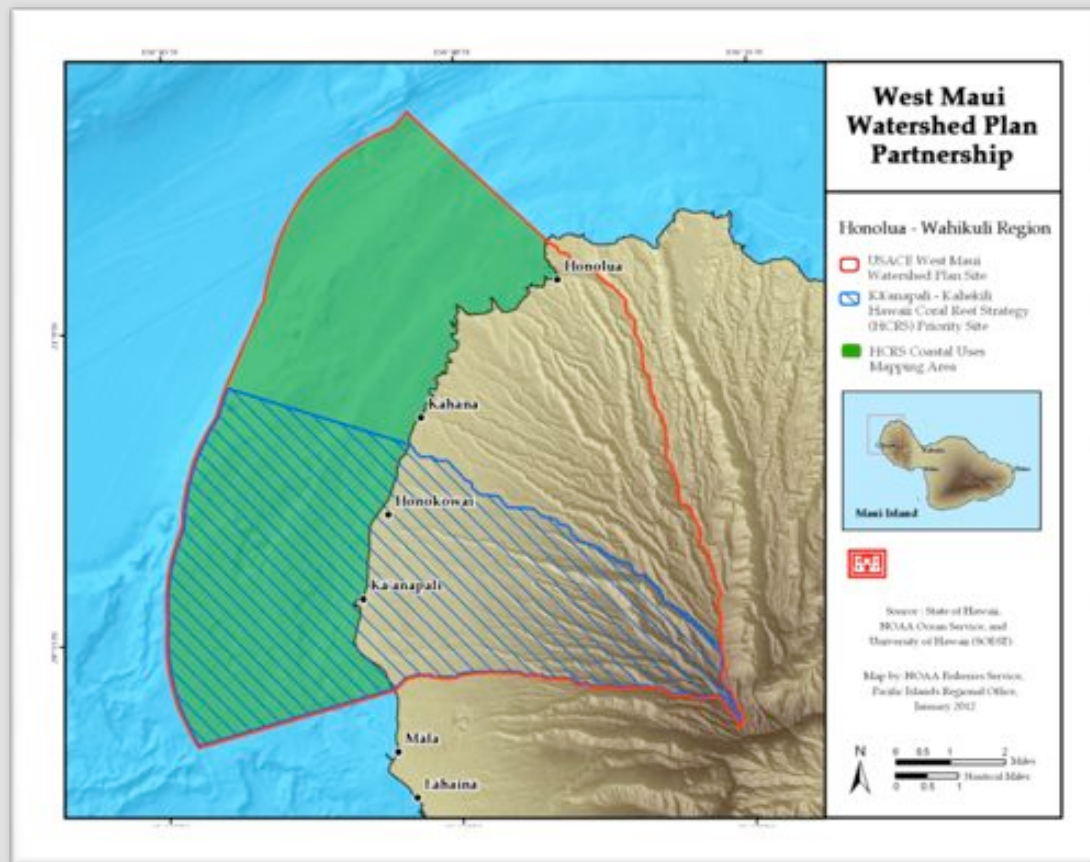
# Presentation Outline

- Brief review of site
- Watershed Planning Efforts
  - Ka'anapali-Kahekili Watershed Management Plan
  - West Maui Watershed Plan
- Ongoing Management and Stewardship

**West Maui Watershed Plan:** comprehensive, integrated & collaborative planning process sponsored by DLNR and USACE, Honolulu District; supported by DOH, NOAA, & EPA



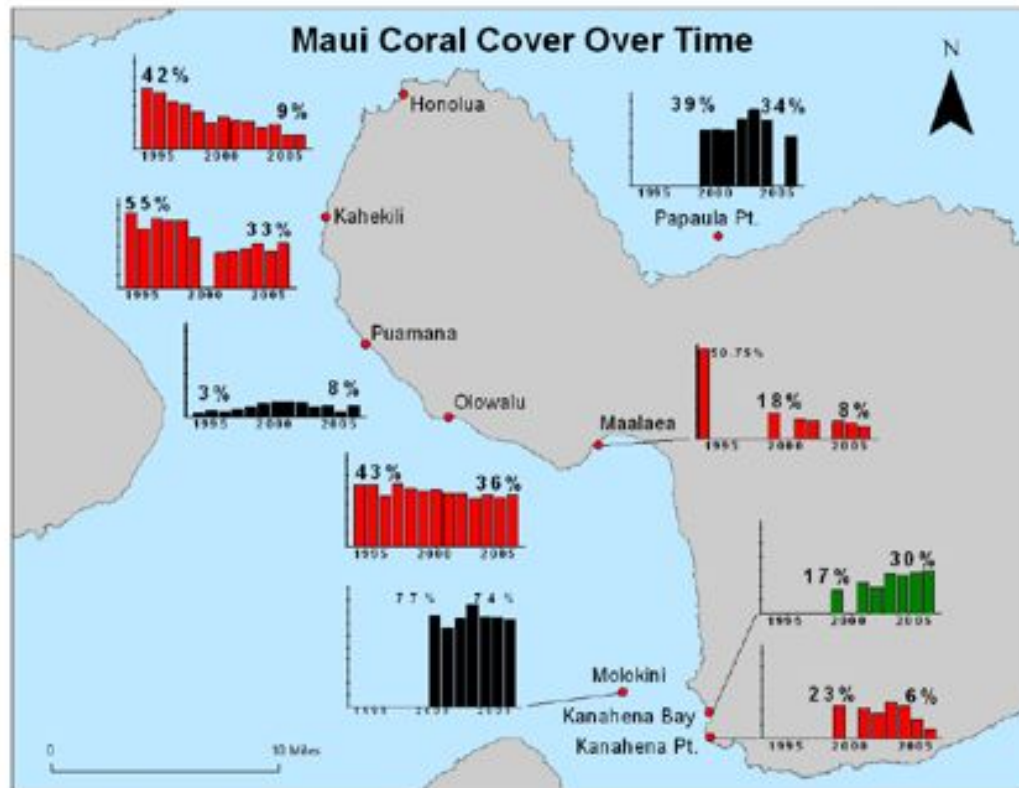
# Kahekili, Maui







# Monitoring Maui Reefs



Trends in coral cover at 9 long-term monitoring stations. Red indicates >5% decline over monitoring period, green indicates >5% increase, black = no change (<5%)

- PWF, CRAMP and DAR surveys over 10+ years
- Algal blooms identified as major problem for Maui reefs
- Data suggests that reduced grazing and increased nutrients combining to aggravate invasive algae problem and degrade reefs



# Kahekili Herbivore FMA

- 2009 DAR: implements Herbivore FMA to address reduced grazing of algae on Kahekili reefs
  - All harvest of nenu, uhu, surgeonfish and urchins is prohibited
  - Monitoring of reefs and fisheries is ongoing
- 2010 Kahekili-Ka'anapali selected as priority site in Hawaii Coral Strategy and by USCRTF





# Ka'anapali-Kahekili Watershed Management Plan

- **Lead(s):** NOAA, Kathy Chaston & SRGII, Andy Hood; Coordinator Tova Callender (3 yr contract)
- **Scope:** 2 Kahekili watersheds (Wahikuli & Honokowai), from coast to agricultural lands (not above)
- **Timeframe:** to be completed December 2012







# Ka'anapali-Kahekili Watershed Management Plan

## **Key objectives/outcomes:**

- **Identify sources of land based pollutants & develop remediation actions to reduce stress on coral reefs**
  - Watershed Characterization Report
  - Identify priority data gaps
  - assess BMPs' effectiveness in reducing land-based pollution
  - predict change in LBP sources in future accounting for proposed/permitted development
  - consider potential BMPs for future development
  - quantify input sources (relative contributions)
  - address injection wells
- **Utilize EPA watershed plan criteria, 9 required elements**
- **ID actions that could be implemented in next 2-3 years**

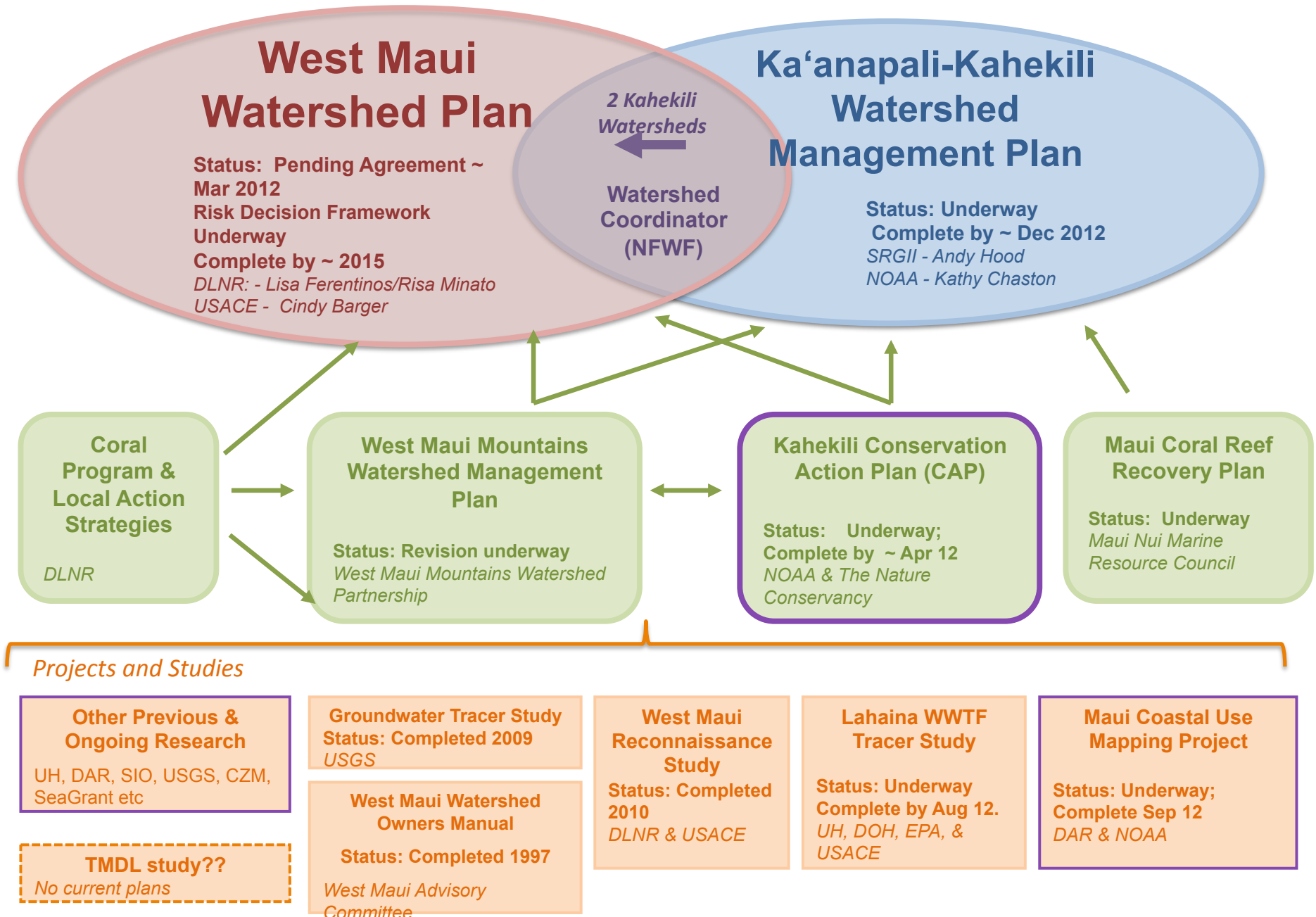




# Ka'anapali-Kahekili Watershed Management Plan Status Update

- Draft watershed characterization complete, ready for agency & public review
- Coordinator, Tova Callender, starting March 1
- Timeline: completed in calendar year 2012

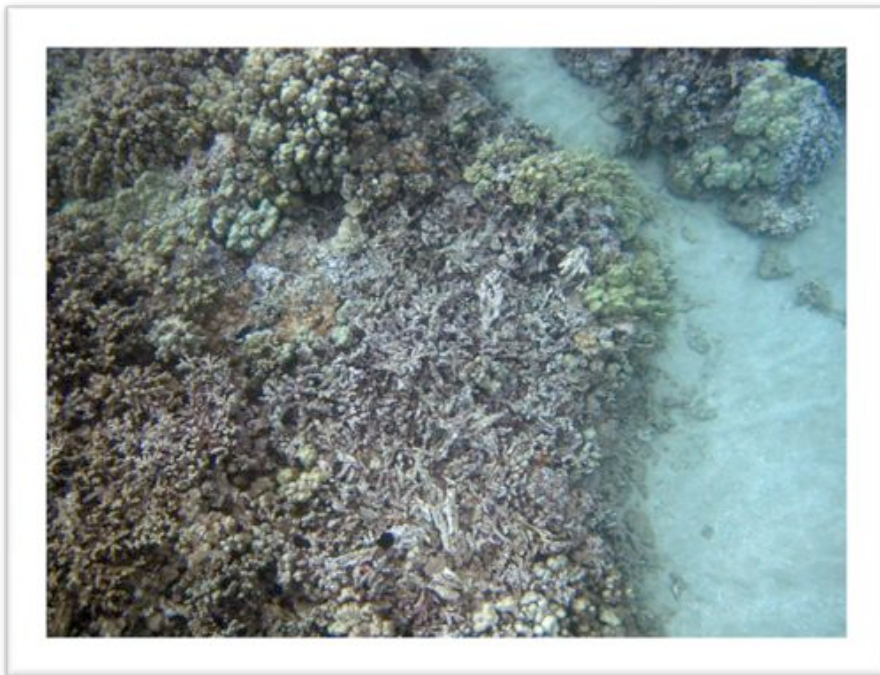
**West Maui Watershed Plan:** comprehensive, integrated & collaborative planning process sponsored by DLNR and USACE, Honolulu District; supported by DOH, NOAA, & EPA





# West Maui Watershed Plan

**Lead(s):** DLNR, DOFAW (Lisa Ferentinos); USACE (Cindy Barger); Tova Callender (3 yr contract)



- **Geographical Scope:** All West Maui Watersheds, Kaanapali to Honolua;
- **Content Scope:** Integrated Management to Reduce Land-based Pollution. Identify strategies to be implemented across all agencies.
- **Timeframe:** cost-share agreement expected to be signed this month; 5 year project phased by regions





# West Maui Watershed Plan

## **Key objectives/outcomes:**

- identify strategies to address land-based pollution impacts to coral reefs and nearshore waters in a watershed context
- Identify critical threats to reefs and watershed health.
- Evaluate solutions to these threats from ridge to reef.
- Prioritize actions, and implement restoration or remedial actions.
- Improvement in the overall quality of the West Maui Watershed, coral reefs, and water quality.
- Enhanced management and collaboration through greater interagency communication, improved data sharing, education of scientists and government officials, and building local technical capacity.
- Integrate outcomes of Ka'anapali-Kahekili Watershed Management Plan as pilot for larger West Maui project



## Ongoing Projects

- Herbivore Enhancement Area: nenuke, uhu, surgeonfish and urchins protected within FMA
- Coastal Uses Mapping (Kalisi Mausio)
- Conservation Action Plan for KHFMA (Luna Kekoa)
- Characterization of Dead Zones (Jokiel and Ross)
- Makai Watch (Liz Foote)
- Creel Study (Dr. Alan Friedlander)



## Other Ongoing and Complete Projects

- West Maui Mountains Watershed Management
  - Focus on areas mauka of agricultural fields
- Reconnaissance Study (USACE & DLNR)
  - Confirmed need for West Maui Watershed Plan, enabled federal support
- Tracer Studies
  - Dye tracers study of Lahaina Wastewater Reclamation Facility wells and seeps (UH)
  - Multitracer study (USGS)
    - Completed 2009, did not include LWRF





# Special Thanks:

Risa Minato

Petra MacGowan

Kathy Chaston

Liz Foote

Darla White (photos)

Cindy Barger

Luna Kekoa

Russell Sparks

...and to the many  
individuals and  
agencies who made  
all these projects  
possible and who  
continue to work to  
restore the reefs of  
West Maui



HAWAII  
~coral reef~  
STRATEGY

# Questions?

